REMARKS

The Office Action of **May 8, 2002**, has been received and its contents carefully noted.

In response to the objection to the drawings, filed concurrently herewith is a Submission of Substitute Drawings in which new drawing FIGS. 1(a), 1(b) and 3 are provided.

Claims 9-11 and 15 are rejected under 35 U.S.C. 112, first paragraph as lacking enablement. In response to the rejection of claim 9, it should be noted that one of ordinary skill in the art would reasonably understand that a microscope objective lens may be shown using a single convex-shaped lens, although in reality an objective lens comprises numerous surfaces, some of which are convex-shaped and some of which are concave-shaped.

With respect to the rejection of claims 10, 11 & 15, it should be noted that the specimen (110) may be located on the upper side of the lower side of the holder (120), i.e., the specimen (110) may be located on a surface of the holder (120) facing away from or facing the objective lens. FIGS. 1(a) and 1(b) show these two alternatives. In view of the foregoing, it is respectfully requested that reconsideration and withdrawal of the rejection be given by the Examiner.

Claims 1 & 13 stand rejected under 35 U.S.C. 102(b) as clearly anticipated by U.S. Patent No. 2,944,463 to Räntsch, claims 1, 2, 10, 13 & 14 stand rejected under 35 U.S.C. 102(b) as clearly anticipated by U.S. Patent No. 5,801,881 to Lanni et al. (Hereinafter "Lanni"). Applicant respectfully traverses these rejections in contending that the rejected claims clearly define over the Räntsch and Lanni patents.

The claimed invention is directed generally to a microscope for transmission viewing of a specimen, the microscope comprising: (1) an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area, and (2) a reflector means positioned for reflecting light which has been focused by the objective lens on the illuminated area and has been transmitted through the specimen, back through the illuminated area of the specimen.

The Räntsch (in FIG. 1) and Lanni (in FIG. 4) patents both teach a microscope in which a light beam is parallel or divergent between the objective lens and the specimen, respectively. Thus, in accordance with the express teachings of the Räntsch and Lanni patents, the illuminating light is not focused on the specimen. Correspondingly, the reflectors (11 and 16) are planar and do not have a concave shape.

Moreover, Räntsch teaches the use of polarized parallel light for illuminating a specimen whereby a quarter-wave plate is used for achieving an adjustable balance between light reflected from the specimen and light transmitted through the specimen. In Lanni, the reflector is used for creating a standing wave within the specimen. By moving the specimen, an increased resolution in the z-direction is achieved by the changing nodes and anti-nodes. In this regard, the light inherently has to be parallel with the specimen.

In contrast thereto, the microscope in accordance with each of the rejected claims requires an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area. In other words, light beam converges between the objective lens and the specimen. Thus, the Räntsch and Lanni patents both fail to teach each and every claim limitation set forth by the present invention, namely, focusing illuminating light on a specimen. Reconsideration and withdrawal of the rejection is requested in view of the foregoing remarks.

Claim 3 stands rejected under 35 U.S.C. 103(a) as unpatentable over Lanni, claims 4, 5, 7, 8 & 16 stand rejected under 35 U.S.C. 103(a) as unpatentable over Räntsch in view of U.S. Patent No. 5,982,534 to Pinkel et al. (Hereinafter "Pinkel"), claim 6 stands rejected under 35 U.S.C. 103(a) as unpatentable over Räntsch in view of Pinkel and U.S. Patent No. 3,497,377 to Allingham, claims 4, 5, 7-9, 11, 12 & 16 stand rejected under 35 U.S.C. 103(a) as unpatentable Lanni inn view of Pinkel, and claim 15 stands rejected under 35 U.S.C. 103(a) as unpatentable over Lanni in view of Pinkel and U.S. Patent No. 6,255,083 to Williams. Applicant respectfully traverses these rejections in contending that the proposed combination of references fails to yield each and every claim limitation set forth in the present invention.

Regarding the rejection of claim 3, insofar as Lanni fails to expressly teach or implicitly suggest each and every feature presently set forth in base claim 1, as has already been established in the remarks set forth above, claim 3 cannot be rendered *prima facie* obvious since it incorporates by reference each and every feature set forth in claim 1. In particular, Lanni fails to disclose or suggests a microscope comprising an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area.

Regarding the rejection of claims 4, 5, 7, 8 & 16, insofar as the base reference Räntsch clearly fails to expressly teach or implicitly suggest each and every feature presently set forth in base claim 1, as has already been established in the remarks set forth above, claims 4, 5, 7, 8 & 16 cannot be rendered *prima facie* obvious since they each incorporate by reference each and every feature set forth in claim 1. In particular, Lanni fails to disclose or suggests a microscope comprising an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area.

Moreover, the secondary reference Pinkel fails to modify Räntsch in a manner sufficient to render the claimed invention obvious since it too fails to disclose such a feature. Notably, Pinkel teaches a reflector provided for the multiple reflection of the illuminating light from light sources (103, 211 and 311), so the reflected beam passes multiple times through the same specimen in order to multiply the effect of a weak illumination light. The objective lenses (133, 221 and 319) are provided merely for collecting the light that has passed through the specimen, and are not provided for directing and focusing illuminating light on the specimen.

Regarding the rejection of claim 6, insofar as the base reference Räntsch and secondary reference Pinkel both clearly fail to expressly teach or implicitly suggest each and every feature presently set forth in base claim 1, as has already been established in the remarks set forth above, claim 6 cannot be rendered *prima facie* obvious since it incorporates by reference each and every feature set forth in claim 1. Moreover, the secondary reference

Allingham fails to overcome the deficiencies of Räntsch and Pinkel in a manner sufficient to render the claimed invention obvious since it also fails to disclose such a feature.

Regarding the rejection of claims 4, 5, 7-9, 11, 12 & 16, insofar as the base reference Lanni and secondary reference Pinkel each clearly fail to disclose each and every feature presently set forth in base claim 1, the rejected claims cannot be rendered *prima facie* obvious since they each incorporate by reference each and every feature set forth in claim 1.

Regarding the rejection of claim 15, Lanni and Pinkel both fail to disclose a microscope comprising an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area, as presently set forth in base claim 1. Claim 15 cannot be rendered *prima facie* obvious since it incorporates by reference each and every feature set forth in claim 1. Moreover, the secondary reference Williams fails to overcome the deficiencies of Lanni and Pinkel in a manner sufficient to render the claimed invention obvious since it also fails to disclose such a feature.

Hence, the prior art cited by the Examiner clearly fails to teach, disclose or suggest a microscope comprising an objective lens positioned for focusing a light beam produced by a light source on an area of a specimen for illuminating the area. Such a feature is advantageous since, by focusing the illuminating light on the specimen and providing a reflector means for reflecting light that has been focused by the objective lens on the illuminating area to transmit the illuminating light back through the specimen, the microscope can be used for both transmission viewing of a specimen and for epi-fluorescence illumination. Accordingly, reconsideration and withdrawal of the rejections is respectfully requested.

The prior art which has been cited but not applied by the Examiner has been taken into consideration during formulation of this response. However, this art is not any more relevant than that relied upon by the Examiner and was not considered by him to be of sufficient relevance to applied against the original claims. In particular, U.S. Patent No. 6,215,549 to Suzuki et al. merely discloses how the exact position of an object can be determined using a hemispheric arrangement having lateral openings for incident light. U.S.

Patent No. 4,297,032 to Temple merely discloses illuminating a specimen (10) using a laser beam (14) which is internally reflected at the specimen (10).

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,

Jerome W. Massie IV
Registration No. 48,118

NIXON PEABODY LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 770-9300

JWM/TAV

MARKED-UP VERSION OF AMENDMENT

In the Specification:

[0017] As shown in Figure [3] 2, in order to obtain an image with contrast as high as possible during illumination and transmission viewing of the specimen 110, the reflector means 122 can be made such that it does not reflect with uniform intensity over the entire hemisphere of the illumination light, but rather acts as a mirror only in one certain range for the wavelength(s) of the illumination light in order to achieve "oblique illumination" of the specimen 110. In a particular embodiment only less than one quarter 128 of the hemispheric surface 126 is reflective, while the remaining area 130 does not act as a mirror for the wavelengths of the illumination light.

[0018] The arrangement shown in Figure [2] 1 forms an extremely versatile and flexible overall system for combined transmission and epi-fluorescence microscopy. It does not require additional transmission illumination and can be selectively operated as a transmission microscope or as an epi-fluorescence microscope with a single light source by quickly changing the wavelength of the light source between the illumination light and the excitation light [as a]. A particularly suitable light source, which can be switched quickly between different wavelengths, is described in the German DE 42 28 366, where white light is guided via a parabolic mirror onto a holographic reflection grating, which is turned by way of a scanner and diffracts light with a spectral composition, which depends on the angle of rotation of the reflection grating, onto the parabolic mirror, from where it is supplied via an optical fiber to the excitation beam path of the microscope. Similar embodiments of a light-source corresponding to DE 42 28 366, but with direct coupling to the microscope without the use of [fiberscan] fibers can also be imagined.

In The Claims:

2. (Amended) The microscope device as claimed in claim 1, wherein said light source is a light source for producing [transmission] transmitted light illumination and [epi fluorescent light] epi-fluorescence illumination.

9. (Amended) The microscope device as claimed in claim 1, wherein said objective lens [comprises a concave shaped body which] is operable to be optically coupled to the specimen via an immersion liquid for transmitting the light beam from said light source to the specimen.

10. (Amended) The microscope device as claimed in claim 1, further comprising a holder for supporting the specimen on a surface facing away from or facing said objective lens, said holder being transparent so as not to reflect the light beam.

11. (Amended) The microscope device as claimed in claim 10, wherein said body of said [reflection] reflector means is operable to be optically coupled to the holder via an immersion liquid for transmitting the light beam reflected by said [concave surface] reflector means to the specimen.

16. (Amended) The microscope device as claimed in claim 1, wherein said reflector means comprises a body having [an aperture] a small cavity for allowing particles flung from the specimen by action of the light beam to be captured by said reflector means.